



Virtual Learning

**Medical Interventions**

**Precision Medicine**

April 27, 2020



# Medical Interventions

## Lesson: April 27, 2020

### **Objective/Learning Target:**

Recognize that all drugs do not act the same way for all individuals. (3.4.1)



## Let's Get Started:

1. Review genome sequencing by watching [this video](#).
2. Watch [this video](#) to learn about precision medicine and answer the following questions:
3. What is precision medicine? What is the goal of precision medicine?



## Let's Get Started: **Answers**

What is precision medicine? What is the goal of precision medicine?

- a. field of medicine that uses a person's genetic profile, lifestyle, and environmental factors to inform health care decisions
- b. goal is to provide more effective treatments, with fewer side effects

**Keep in Mind:** *Precision medicine and personalized medicine are used interchangeably and mean the same thing, but precision is a more accurate description as treatments are not being developed for specific individuals but rather identifying which approaches would be best for treatment.*



# Lesson Activity

Read the article over [precision medicine](#) in cancer and compare it with [standard treatments](#) for cancer by completing a T chart on paper.

Precision Medicine	Standard Treatment

# Lesson Activity - **Answers**

## Precision Medicine

- Doctors take a biopsy, in which sample tissue is removed from the tumor
- Genomic sequencing is performed on this tissue, and doctors look for any genetic changes that may be causing the cancer to form and grow
- If able to identify the DNA alteration that is causing the growth of the tumor and treatment already exists for this alteration, this info is used to evaluate which treatment the tumor is most likely to respond to, may also be able to determine if any inherited genetic mutations exist
- Once treatment begins, ongoing tests for DNA mutations will continue throughout course of treatment
- not certain that targeted therapies will exist or that DNA alterations can be identified

## Standard Treatment

- Doctors perform tests to determine the type of cancer, its size and whether it has spread. Tests may include blood tests, imagery scans and/or biopsies
- Depending on the type of cancer and its stage, treatments include surgery, chemotherapy, radiation therapy
- While some patients will have only one type of treatment, the majority of patients will undergo a combination of treatments such as surgery and chemotherapy, or chemotherapy followed by radiation
- If the therapy is effective, doctors traditionally move on to a more aggressive form of treatment.



## Practice

Indicate whether the following is a part of precision medicine, standardized treatment, or both.

1. Utilizes genomic sequencing
2. Biopsies are performed
3. Uses patient DNA to determine best course of treatment
4. There is uncertainty if the starting treatment will work
5. May be able to detect inherited genetic mutations



## Practice - **Answers**

Indicate whether the following is a part of precision medicine, standardized treatment, or both.

1. Precision medicine
2. Both
3. Precision medicine
4. Both
5. Precision medicine





## Additional Practice/Resources

Check your understanding by answering the following quiz questions:

1. Precision medicine allows doctors and health care providers to
  - A. use genetic information to diagnose more patients
  - B. create specific treatments for patients with fewer side effects
  - C. prescribe the right medications in the right dose without having to use “trial and error” to try to determine whether the medicine will help
  - D. all of the above
2. Some patients can take a genetic test to determine how well a specific drug will work for them. T/F
3. How might people with asthma, cystic fibrosis or cancer benefit from precision medicine?



## Additional Practice/Resources - **Answers**

Check your understanding by answering the following quiz questions:

1. Precision medicine allows doctors and health care providers to

- A. use genetic information to diagnose more patients
- B. create specific treatments for patients with fewer side effects
- C. prescribe the right medications in the right dose without having to use “trial and error” to try to determine whether the medicine will help
- D. all of the above**

2. Some patients can take a genetic test to determine how well a specific drug will work for them. **T/F**

3. How might people with asthma, cystic fibrosis or cancer benefit from precision medicine?

- **these are examples of conditions for which people can take a genetic test that might indicate whether a particular drug will be effective for them**



## Additional Practice/Resources

1. View the [CDC website](#) over current trends in precision medicine and it's potential uses.
2. Not everyone in the healthcare field is on board with precision medicine- [read](#) about the growing divide between precision medicine and population health.